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ICs & Robot Gadgets
Easy Deal Easy Fun

1.Introduction:

BS1703 is a Loudspeaker Wearable Megaphone Electronic Soldering DIY Kit.

Its design is inspired by regular loudspeakers to amplify the sound so that more people can hear you.

It is a very interesting DIY electronic product which enables users to understand the circuit more clearly and learn soldering skills.

2.Parameter:

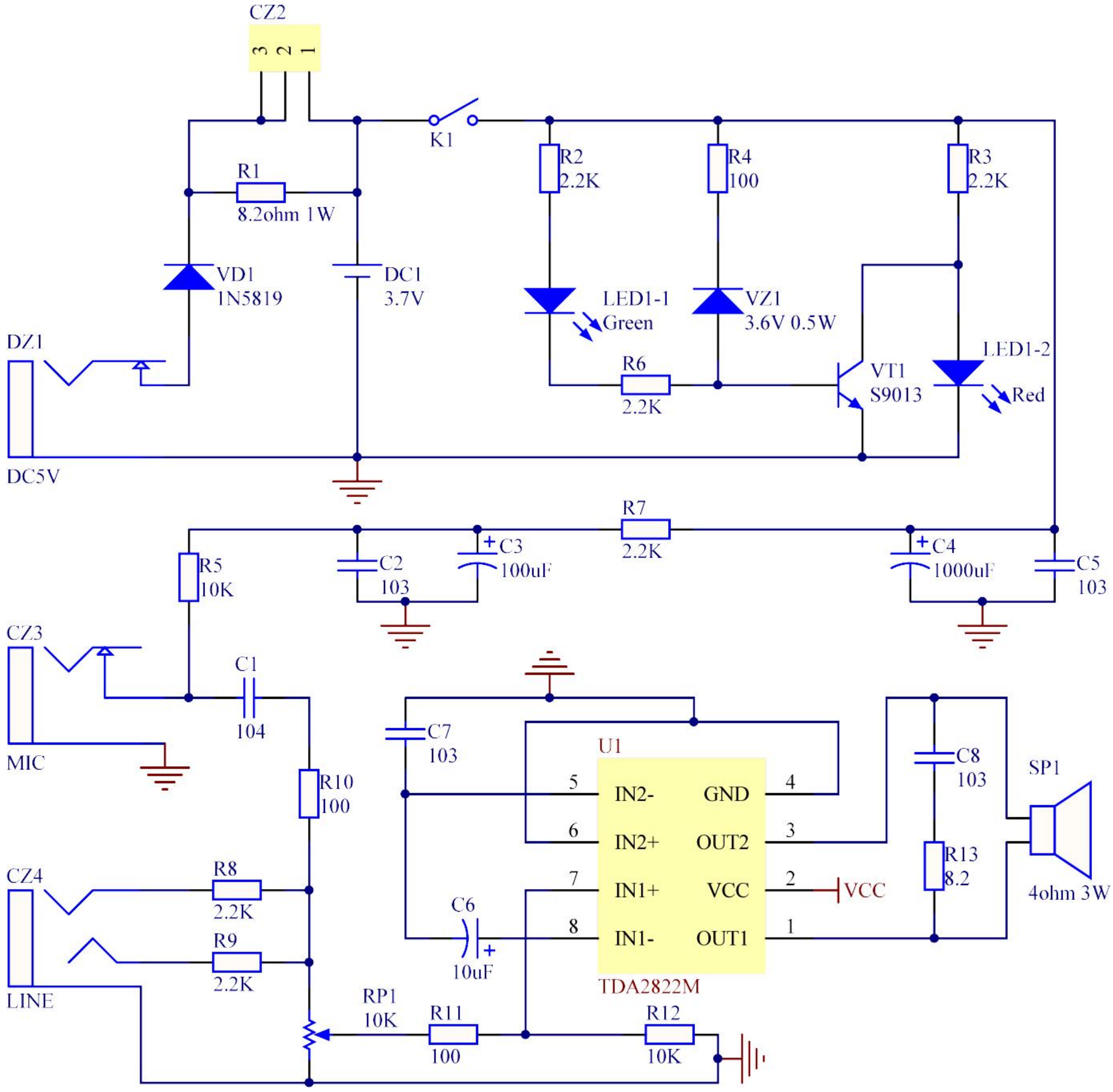
1>.Product Name:BS1703 Loudspeaker Wearable Megaphone DIY Kit
2>.Work Voltage:DC 3.7V-5V
3>.Work Temperature:-20℃~85℃
4>.Work Humidity:5%~85%RH
5>.Size(Installed):105*85*35mm

3.Component List:

NO.	Component Name	PCB Marker	Parameter	QTY
1	Metal Film Resistors	R1	8.2ohm 1W	1
2	Metal Film Resistors	R2,R3,R6-R9	2.2Kohm	6
3	Metal Film Resistors	R4,R10,R11	100ohm	3
4	Metal Film Resistors	R5,R12	10Kohm	2
5	Metal Film Resistors	R13	8.2ohm 0.25W	1
6	Potentiometer	RP1	10Kohm	1
7	Tune Knob	RP1		1
8	Ceramic capacitor	C1	0.1uF 104	1
9	Ceramic capacitor	C2,C5,C7,C8	0.01uF 103	4
10	Electrolytic capacitor	C3	100uF 16V	1
11	Electrolytic capacitor	C4	1000uF 10V	1
12	Electrolytic capacitor	C6	10uF 16V	1
13	1N5819 diode	VD1	DO-41	1
14	Red/Green LED Common Cathode	LED1	3mm	1
15	Voltage Regulator	VZ1	3.6V 0.5W	1
16	S9013 Transistor	VT1	TO-92	1
17	TDA2822M	IC1	DIP-8	1
18	IC Socket	IC1	DIP-8	1
19	Power Socket	CZ1		1
20	Male Pin	CZ2	3Pin 2.54mm	1
21	Jump cap	CZ2	2.54mm	1
22	PJ316 Audio Socket	CZ3		1
23	PJ306 Audio Socket	CZ4		1
24	XH2.54-2P Socket			2
25	XH2.54-2P Cable		10cm	1
26	Self-tapping screws		M2.5*8mm	1
27	Microphone headset			1
28	USB Power Wire		80cm	1
29	18650 Battery			1
30	Case & Speaker			1
31	PCB			1
Note:Users can complete the installation according to the PCB silk screen and component list.				

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4.Schematic



5.Note:

1>.Green LED: Power ON status and enough battery.
2>.Red LED:Charging.
3>.The microphone should not be close to the speaker, otherwise it is easy to produce howling.
4>.The closer you are to the microphone, the clearer the sound.

6.Installation Tips:

1>.User needs to prepare the welding tool at first.
  1.1>.Soldering iron (<=60 Watt)
  1.2>.Rosin core ("radio") solder
  1.3>.Wire cutters
  1.4>.Wire strippers
  1.5>.Philips screwdriver
2>.Please be patient until the installation is complete.
3>.The package is DIY kit.It need finish install by user.
4>.The soldering iron can't touch the components for a long time(3s), otherwise damage components.
5>.Pay attention to the positive and negative of the components.
6>.Strictly prohibit short circuit.
7>.User must install the LED according to the specified rules.Otherwise some LED will not light.
8>.Install complex components preferentially.
9>.Make sure all components are in right direction and right place.
10>.Check that all of the LED can be illuminated.
11>.It is strongly recommended to read the installation manual before starting installation!!!
12>.Please wear anti-static gloves or anti-static wristbands when installing electronic components.

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7.Installation Steps(Please be patient):

1>.Step 1: Install 6pcs 2.2Kohm Metal Film Resistors at R2,R3,R6-R9.
2>.Step 2: Install 3pcs 100ohm Metal Film Resistors at R4,R10,R11.

3>.Step 3: Install 2pcs 10Kohm Metal Film Resistors at R5,R12.
4>.Step 4: Install 1pcs 8.2ohm 0.25W Metal Film Resistors at R13.

5>.Step 5: Install 1pcs 3.6V 0.5W Voltage Regulator at VZ1. Pay attention to the installation direction. There is a black mark on Voltage Regulator and a white mark on PCB which are used to confirm the installation direction.
6>.Step 6: Install 1pcs DO-41 1N5819 Diode at VD1. Pay attention to the installation direction. There is a black mark on 1N5819 and a white mark on PCB which are used to confirm the installation direction.

7>.Step 7: Install 1pcs 8.2ohm 1W Metal Film Resistors at R1.
8>.Step 8: Install 1pcs DIP-8 IC Socket at IC1.There is a gap mark on one end of the IC Socket and there is a gap mark on PCB silk screen where the IC Socket can place on.These two marks are corresponding to each other and are used to specify the installation direction of the IC Socket.

9>.Step 9: Install 4pcs 0.01uF 103 Ceramic capacitor at C2,C5,C7,C8.
10>.Step 10: Install 1pcs 0.1uF 104 Ceramic capacitor at C1.

11>.Step 11: Install 1pcs 3mm Red/Green LED Common Cathode at LED1. Note: The shortest pin is inserted into the pad on the right.
12>.Step 12: Install 1pcs TO-92 S9013 Transistor at VT1. Pay attention to the installation direction. The arc on the PCB corresponds to the arc of the components.

13>.Step 13: Install 1pcs PJ306 Audio Socket at CZ4.
14>.Step 14: Install 1pcs Power Socket at CZ1.

15>.Step 15: Install 1pcs PJ316 Audio Socket at CZ3.
16>.Step 16: Install 1pcs 10uF 16V Electrolytic Capacitor at C6. Pay attention to distinguish between positive and negative.The Longer pin is positive pole.

17>.Step 17: Install 1pcs 100uF 16V Electrolytic Capacitor at C3. Pay attention to distinguish between positive and negative.The Longer pin is positive pole.
18>.Step 18: Install 1pcs 1000uF 10V Electrolytic Capacitor at C4. Pay attention to distinguish between positive and negative.The Longer pin is positive pole.

19>.Step 19: Install 2pcs XH2.54-2P Socket at DZ1,SP1.
20>.Step 20: Install 1pcs 3Pin 2.54mm Male Pin at CZ2. It is used to select internal battery power or external power supply.No installation required by default and internal battery power is selected. Jump caps must be used as shown if external power supply is selected without connect battery.

21>.Step 21: Install Tune Knob on Potentiometer.
22>.Step 22: Install 10Kohm Potentiometer at RP1.

23>.Step 23: Install 1pcs DIP-8 IC TDA2822M at IC1.There is a gap mark on one end of the IC and there is a gap mark on DIP-8 IC Socket where the IC can place on.These two marks are corresponding to each other and are used to specify the installation direction of the IC.
24>.Step 24: Install 1pcs XH2.54-2P Cable on Speaker.

25>.Step 25: Connect Speaker to PCB. You can choose socket or soldering directly. Speaker do not need to distinguish between positive and negative.
26>.Step 26: Connect 1pcs 18650 battery.

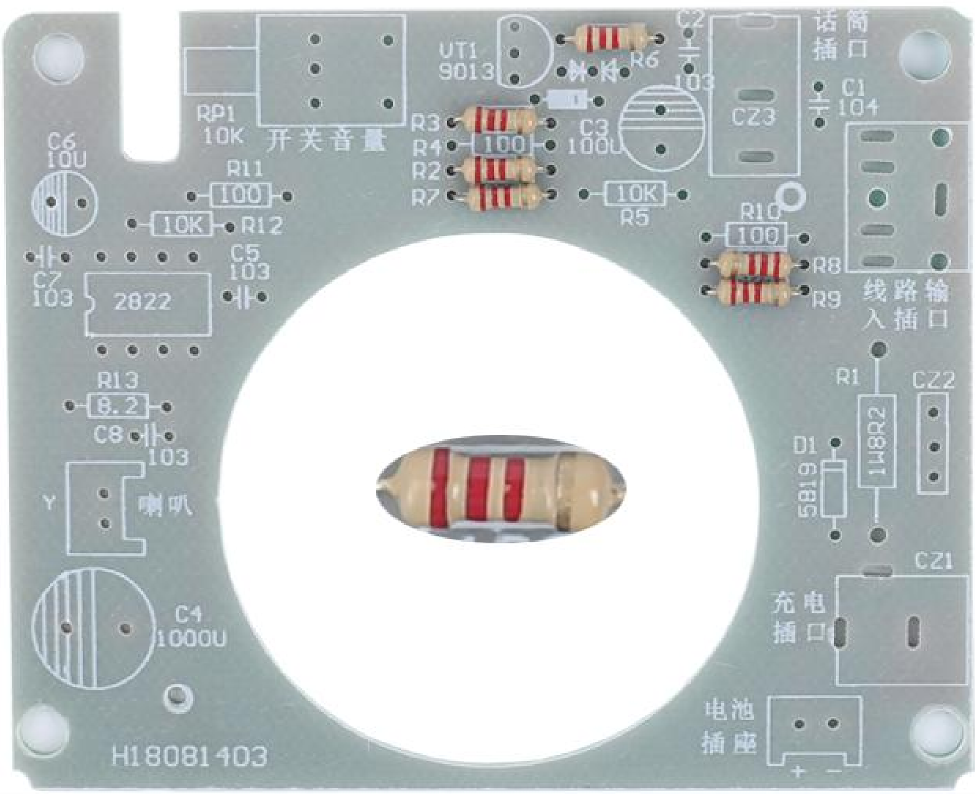
27>.Step 27: Place PCB on case. Be careful to align the 4 mounting holes.
28>.Step 28: Fix case by 4pcs M2.5*8mm Self-tapping screws and snap.

8.Install shown steps:

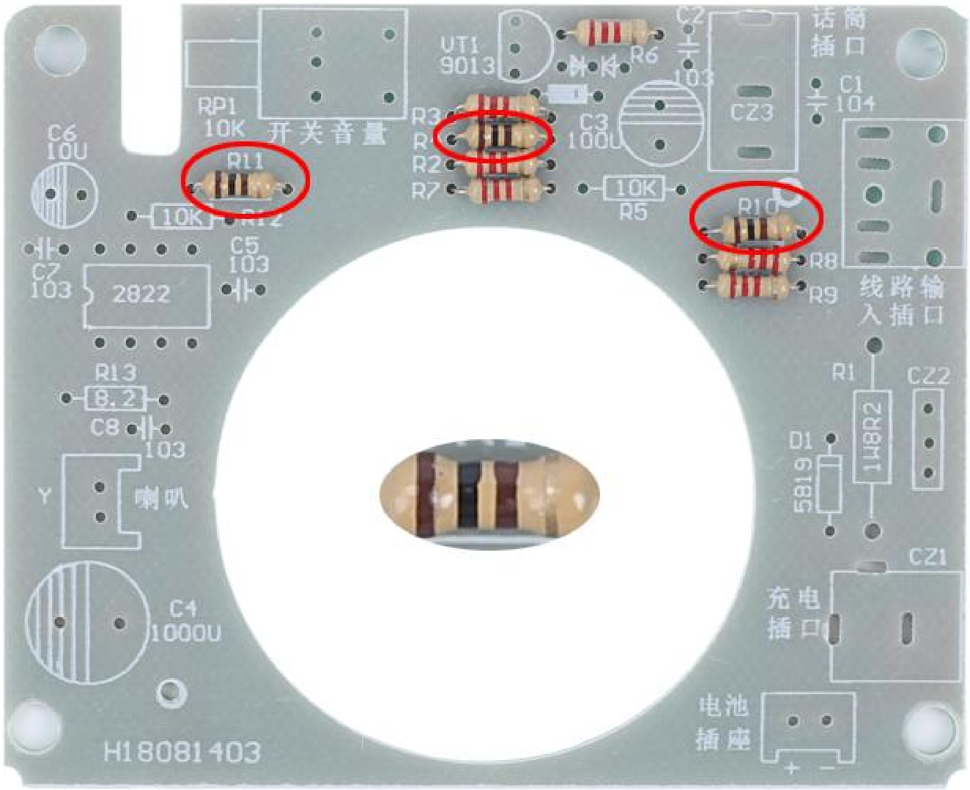
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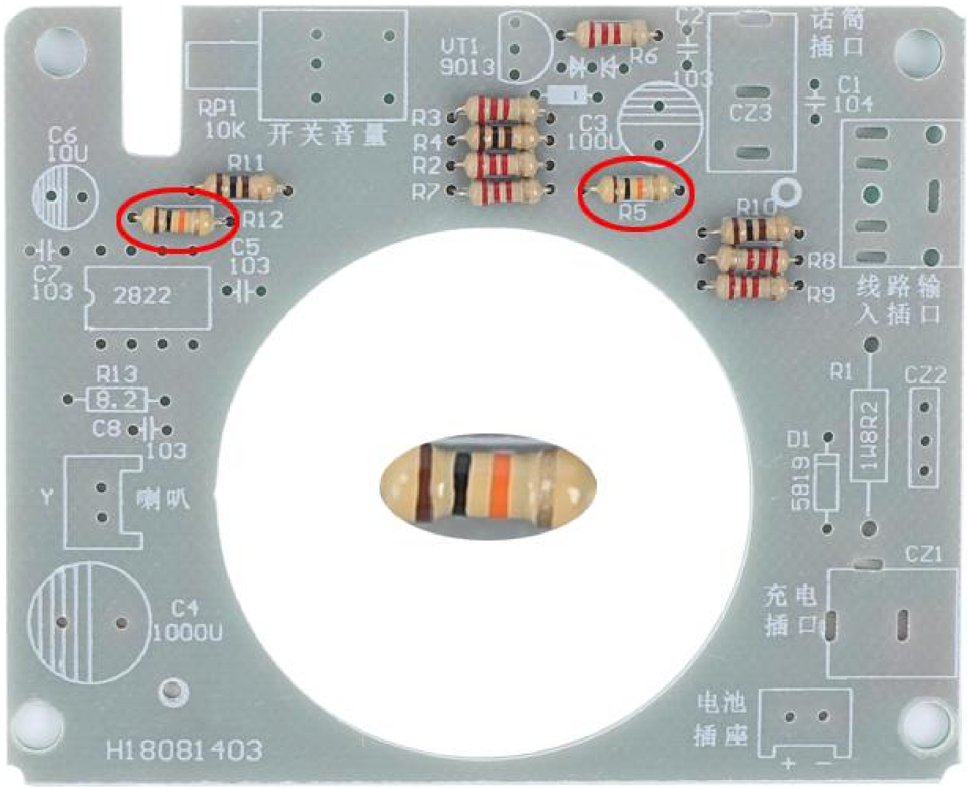
Step 1: Install 6pcs 2.2Kohm Metal Film Resistors at R2,R3,R6-R9.



Step 2: Install 3pcs 100ohm Metal Film Resistors at R4,R10,R11.

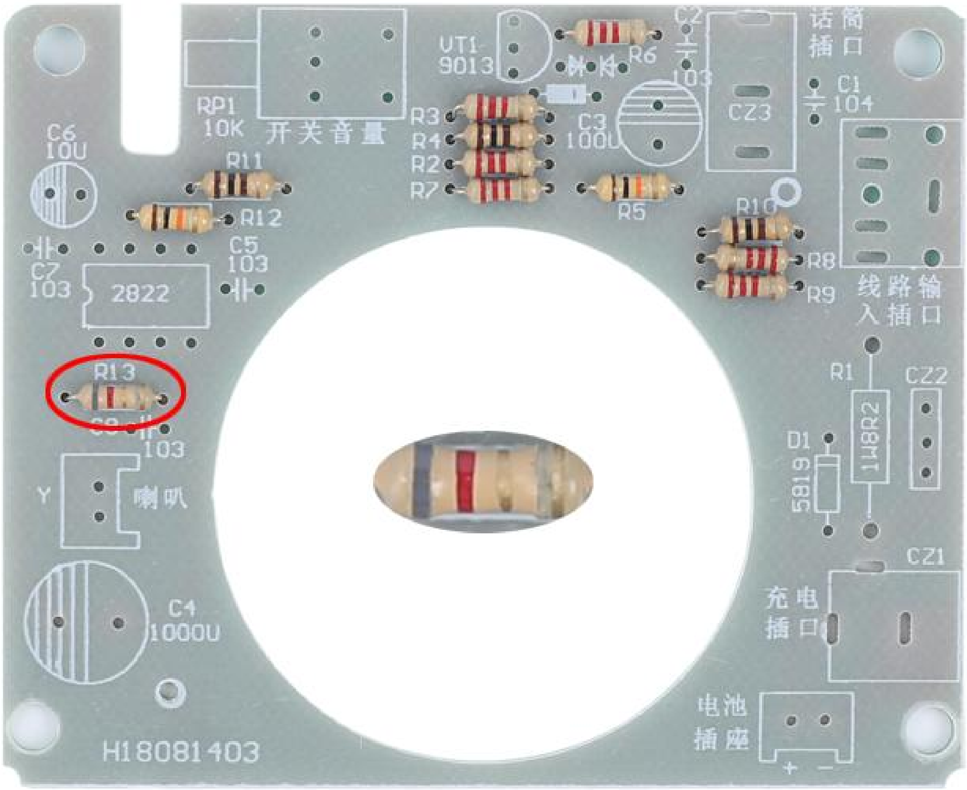


Step 3: Install 2pcs 10Kohm Metal Film Resistors at R5,R12.

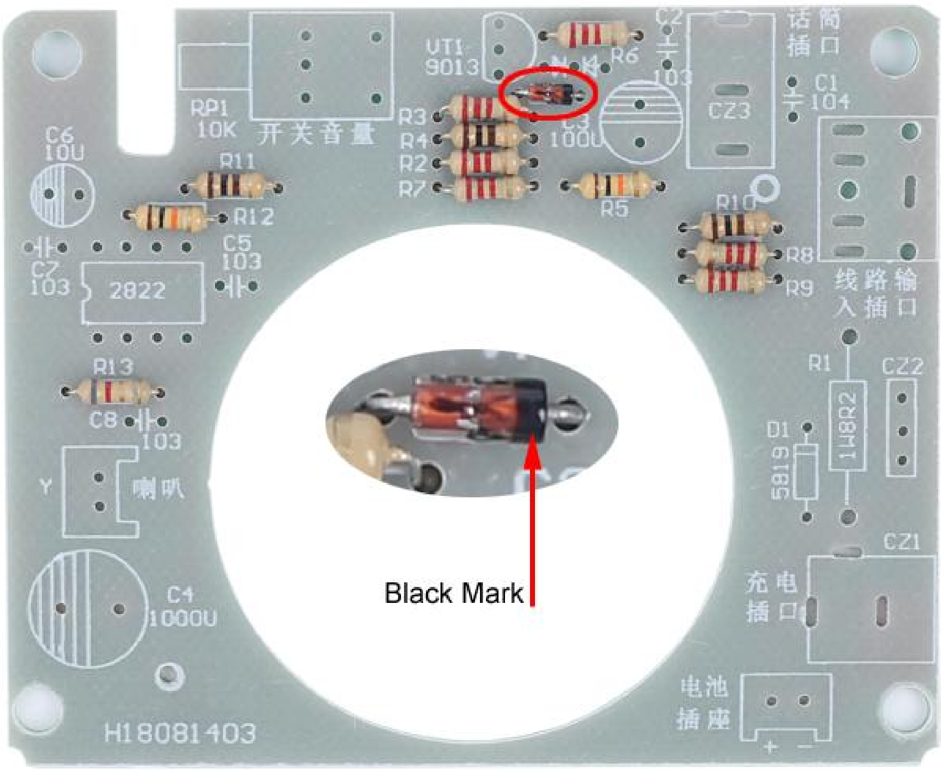


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Step 4: Install 1pcs 8.2ohm 0.25W Metal Film Resistors at R13.

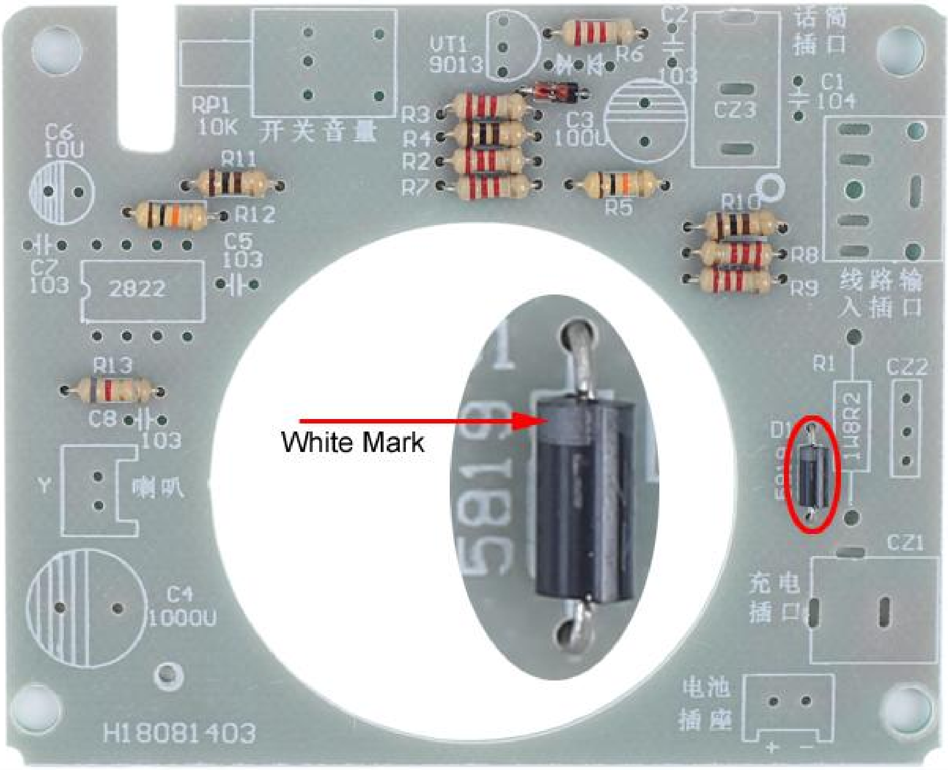


Step 5: Install 1pcs 3.6V 0.5W Voltage Regulator at VZ1. Pay attention to installation direction. There is a black mark on Voltage Regulator and a white mark on PCB which are used to confirm the installation direction.

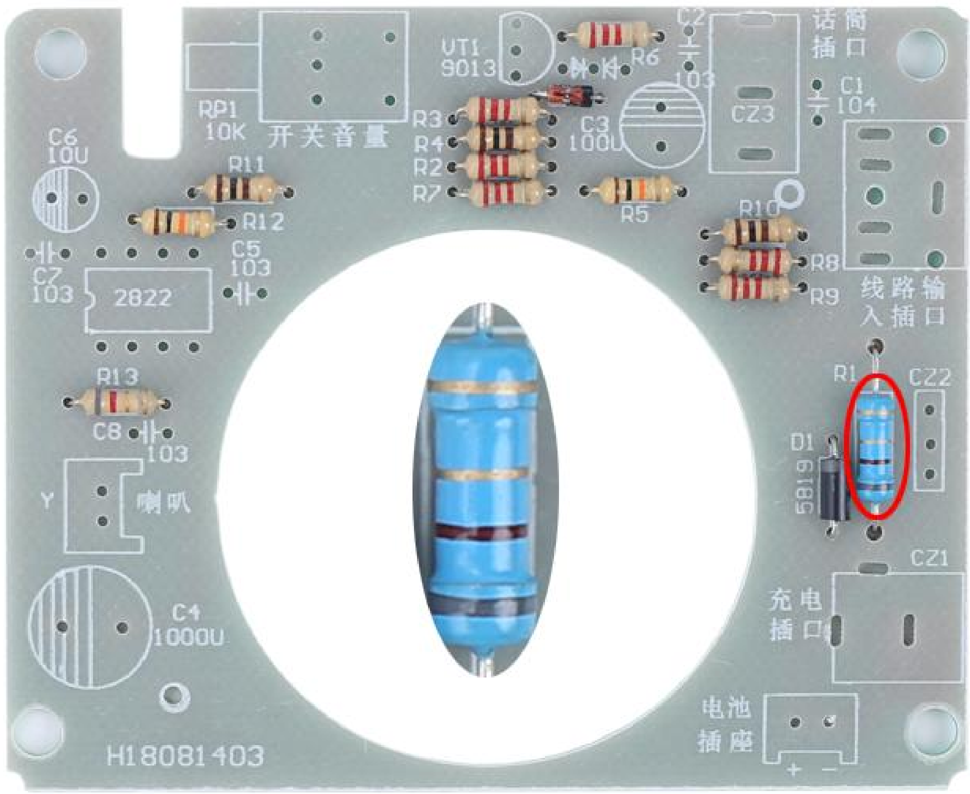


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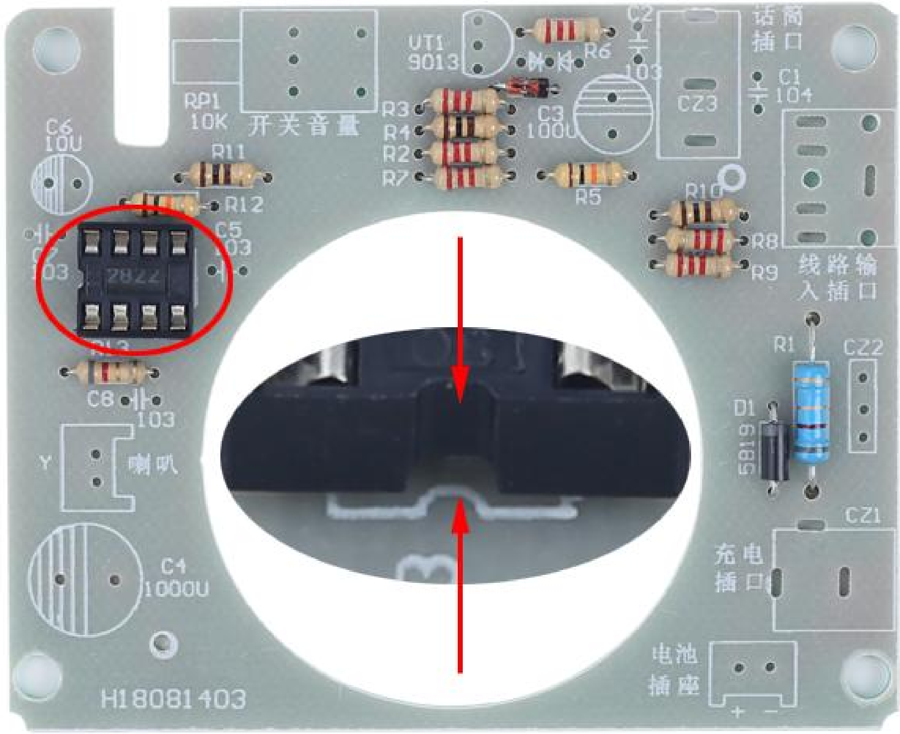
Step 6: Install 1pcs DO-41 1N5819 Diode at VD1. Pay attention to the installation direction. There is a white mark on 1N5819 and a white mark on PCB which are used to confirm the installation direction.



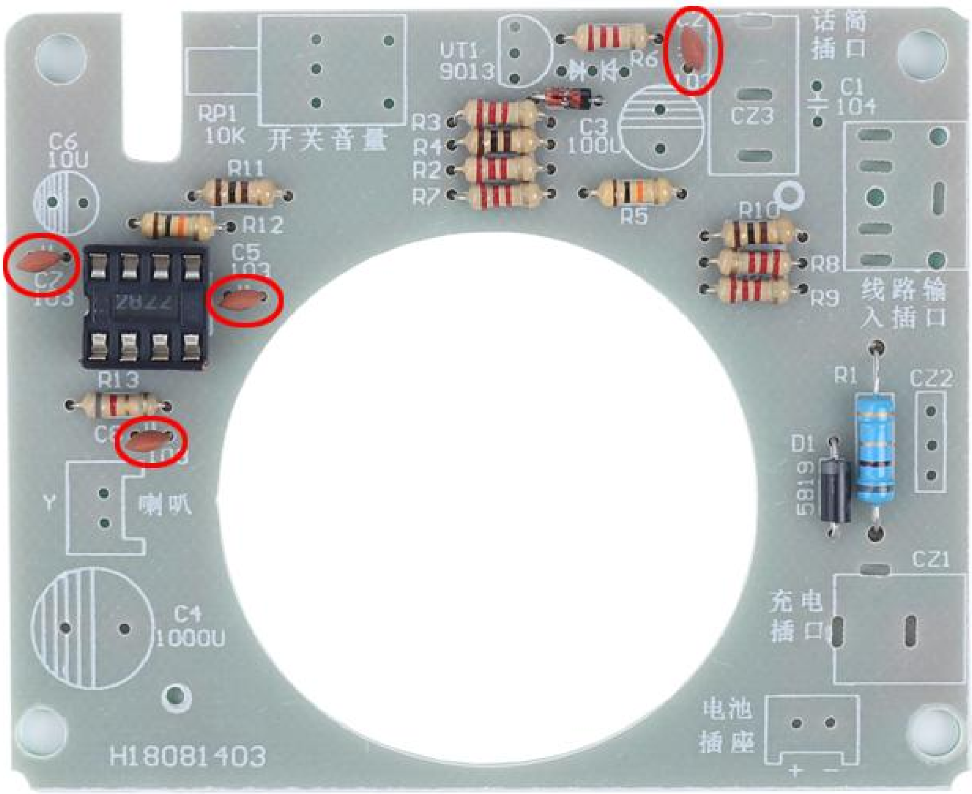
Step 7: Install 1pcs 8.2ohm 1W Metal Film Resistors at R1.



Step 8: Install 1pcs DIP-8 IC Socket at IC1.There is a gap mark on one end of the IC Socket and there is a gap mark on PCB silk screen where the IC Socket can place on. These two marks are corresponding to each other and are used to specify installation direction of the IC Socket.

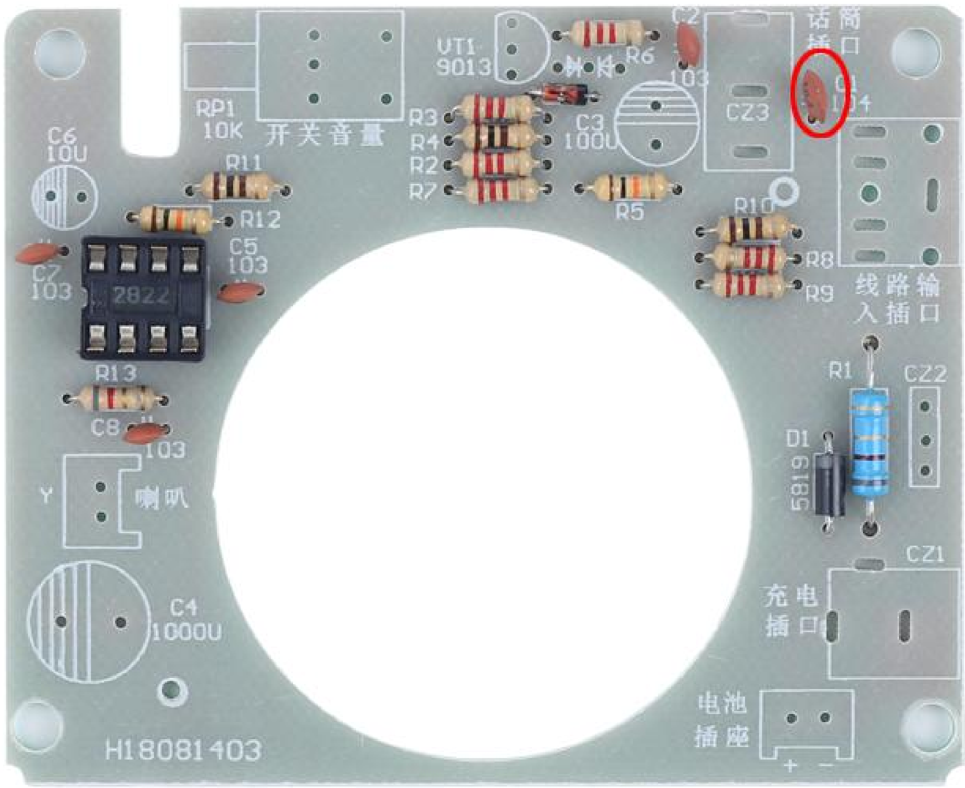


Step 9: Install 4pcs 0.01uF 103 Ceramic capacitor at C2,C5,C7,C8.

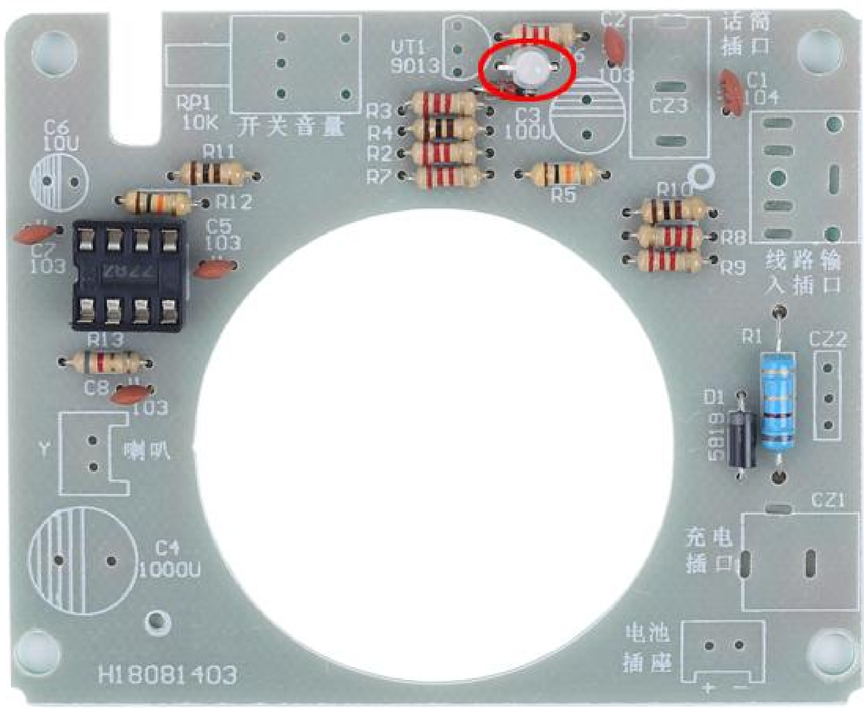


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Step 10: Install 1pcs 0.1uF 104 Ceramic capacitor at C1.



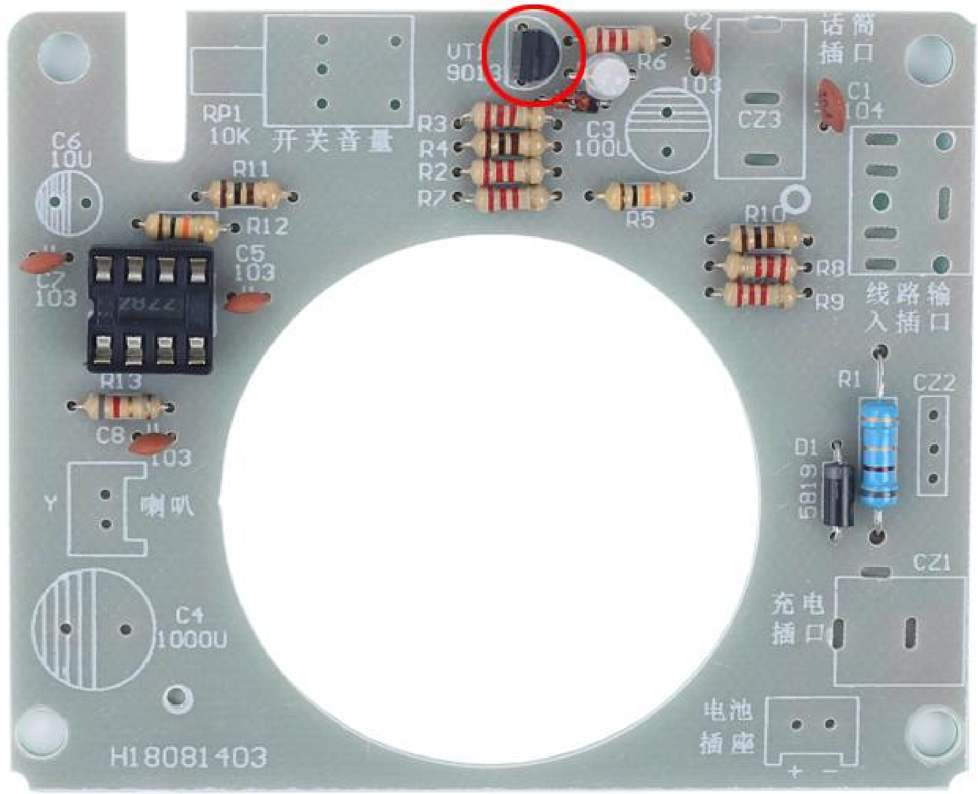
Step 11: Install 1pcs 3mm Red/Green LED Common Cathode at LED1.
Note: The shortest pin is inserted into the pad on the right.



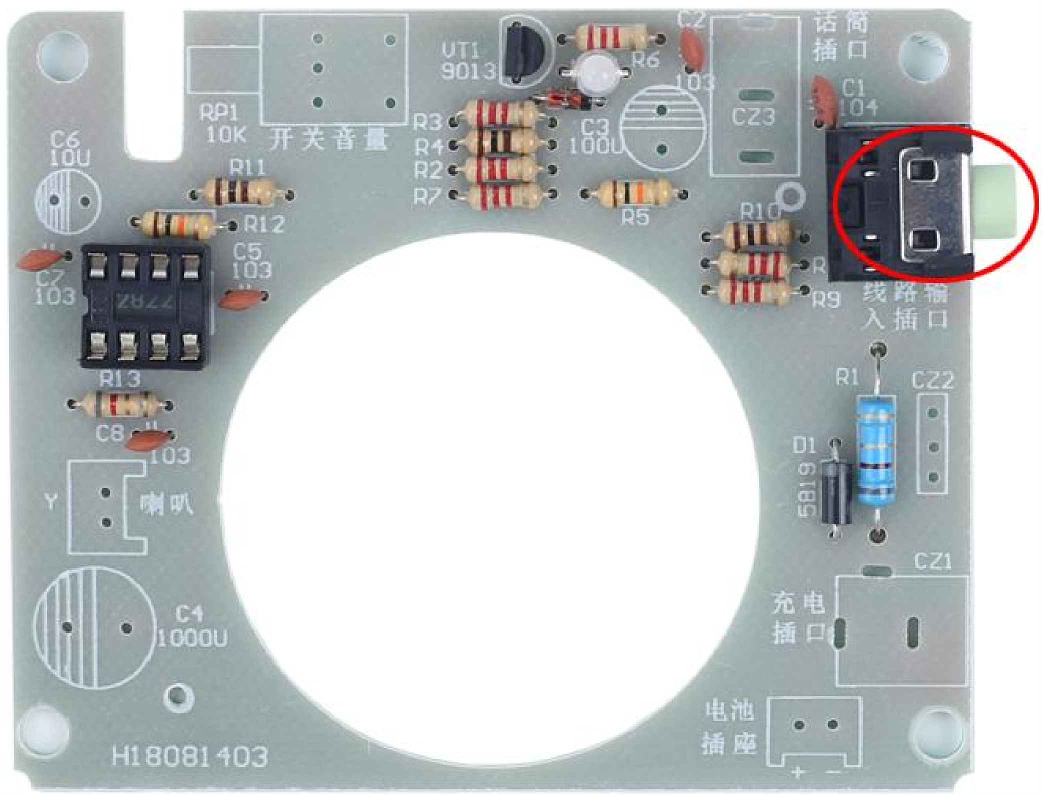


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Step 12: Install 1pcs TO-92 S9013 Transistor at VT1. Pay attention to the installation direction. The arc on the PCB corresponds to the arc of the components.

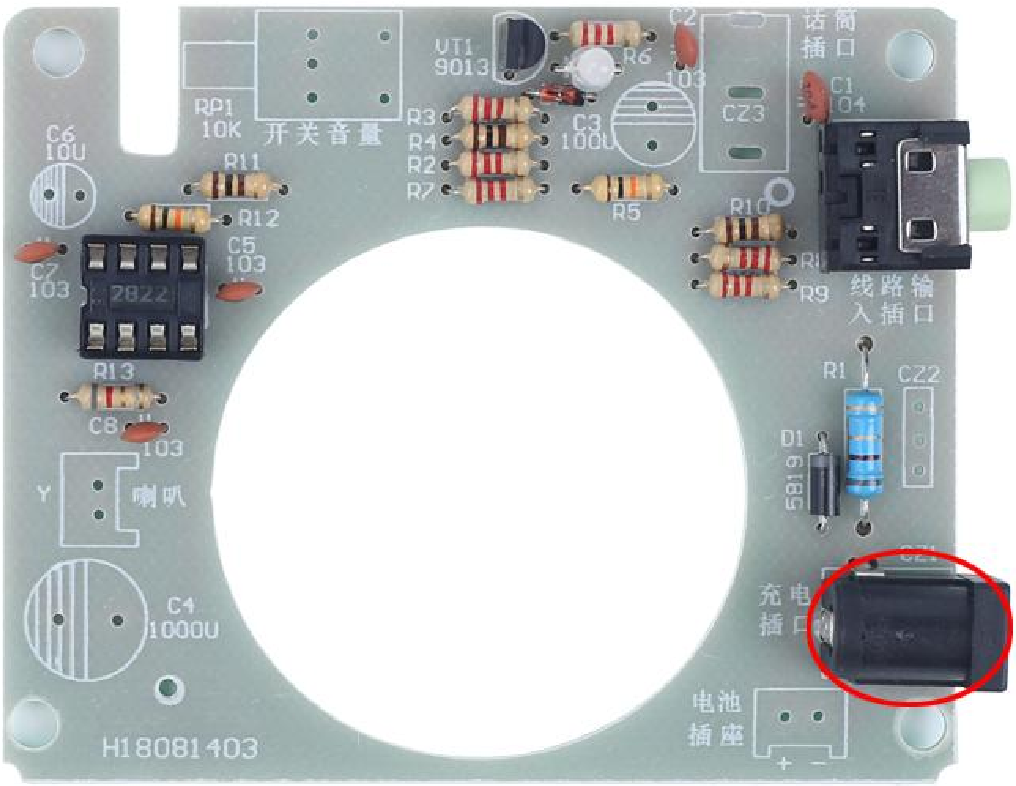


Step 13: Install 1pcs PJ306 Audio Socket at CZ4.

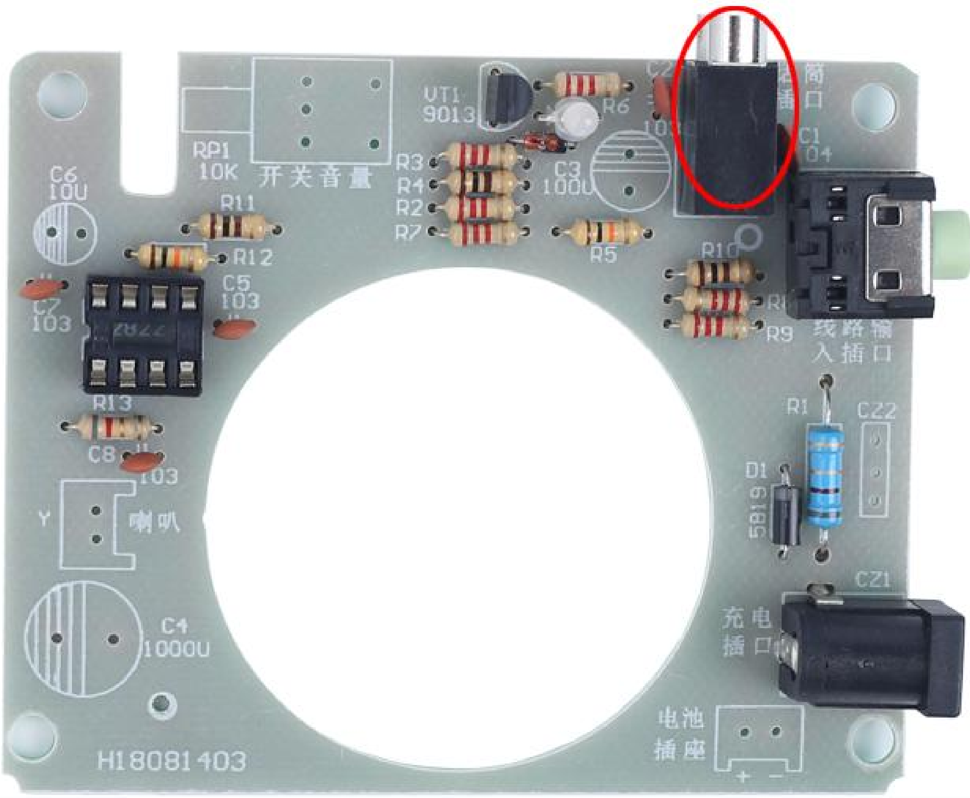


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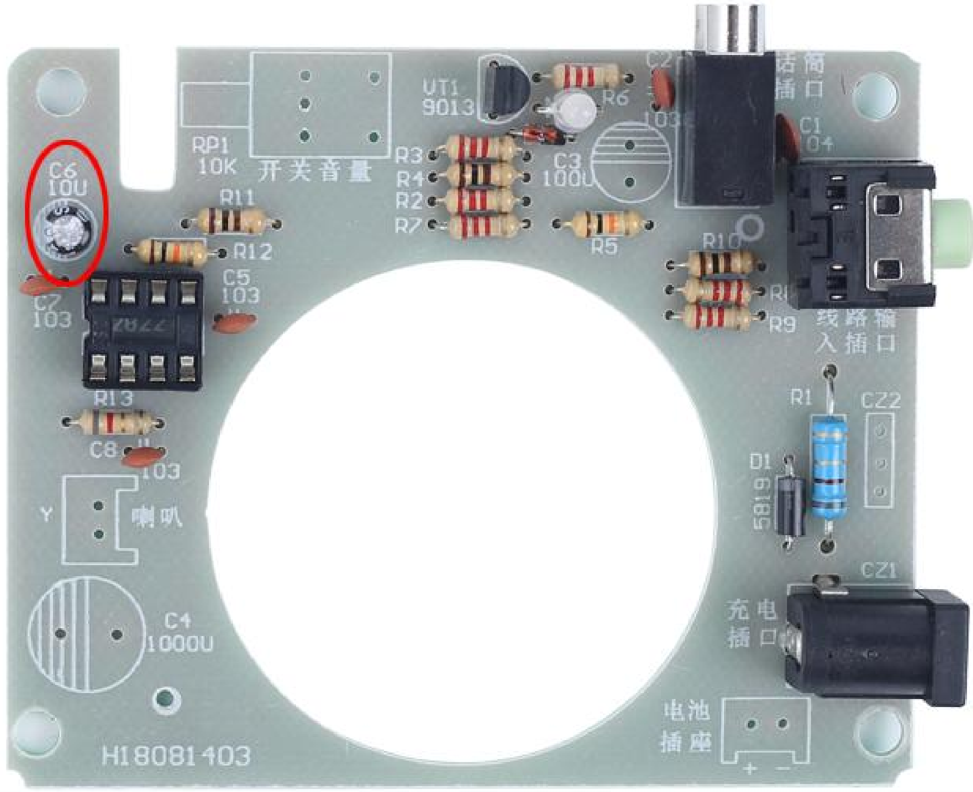
Step 14: Install 1pcs Power Socket at CZ1.



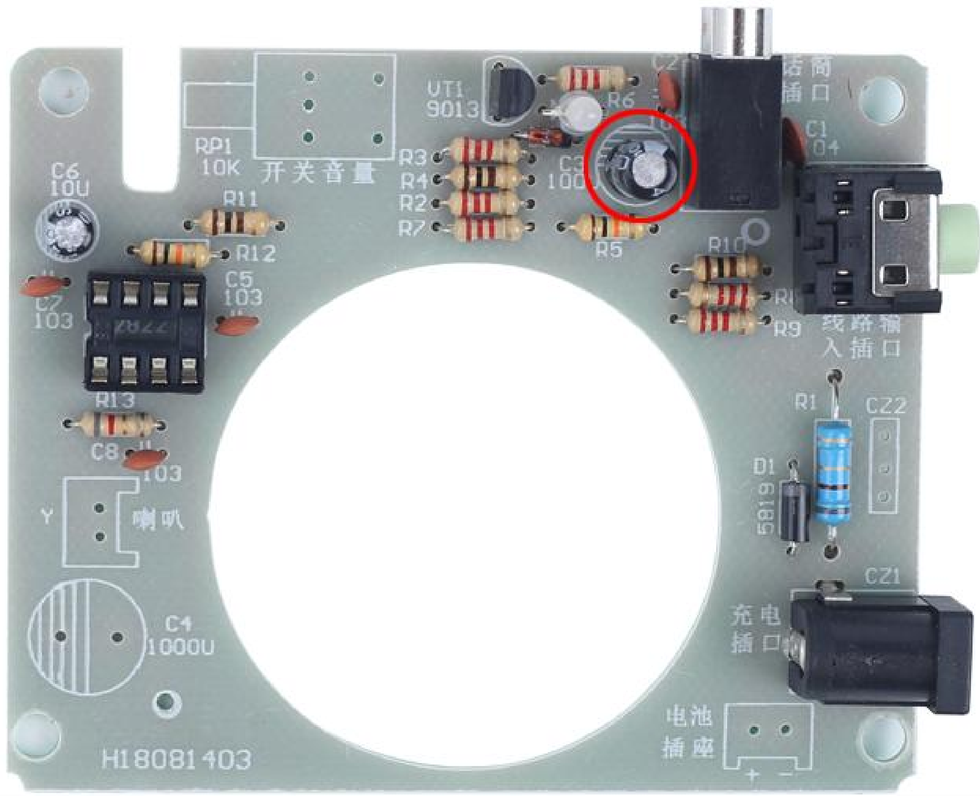
Step 15: Install 1pcs PJ316 Audio Socket at CZ3.



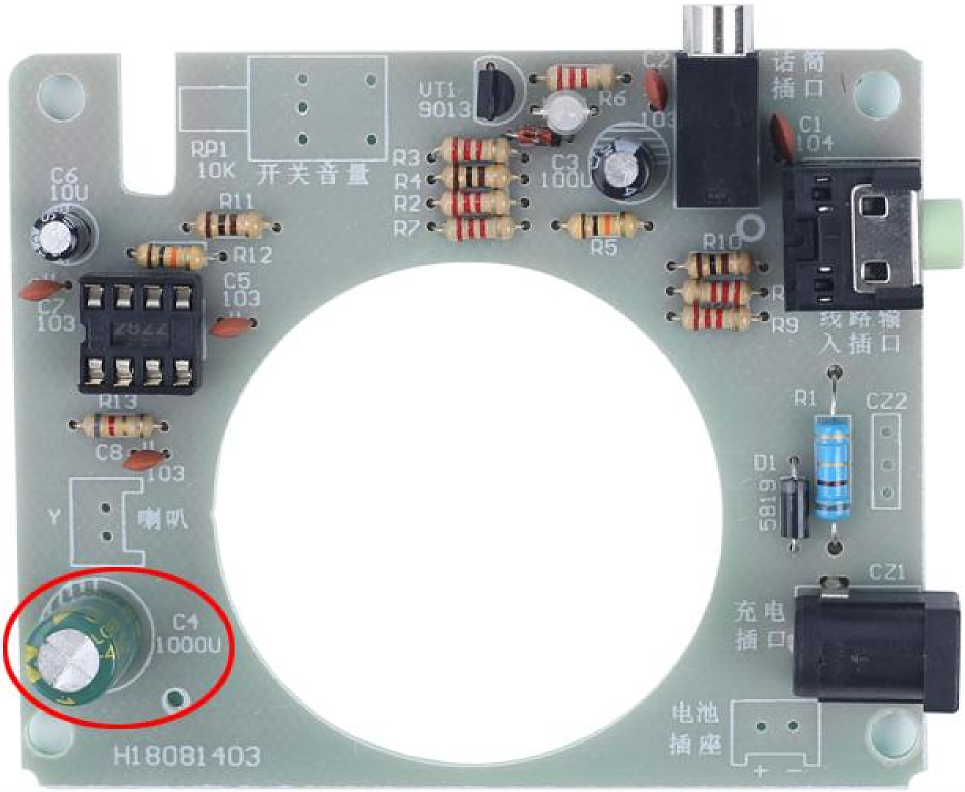
Step 16: Install 1pcs 10uF 16V Electrolytic Capacitor at C6. Pay attention to distinguish between positive and negative.The Longer pin is positive pole.



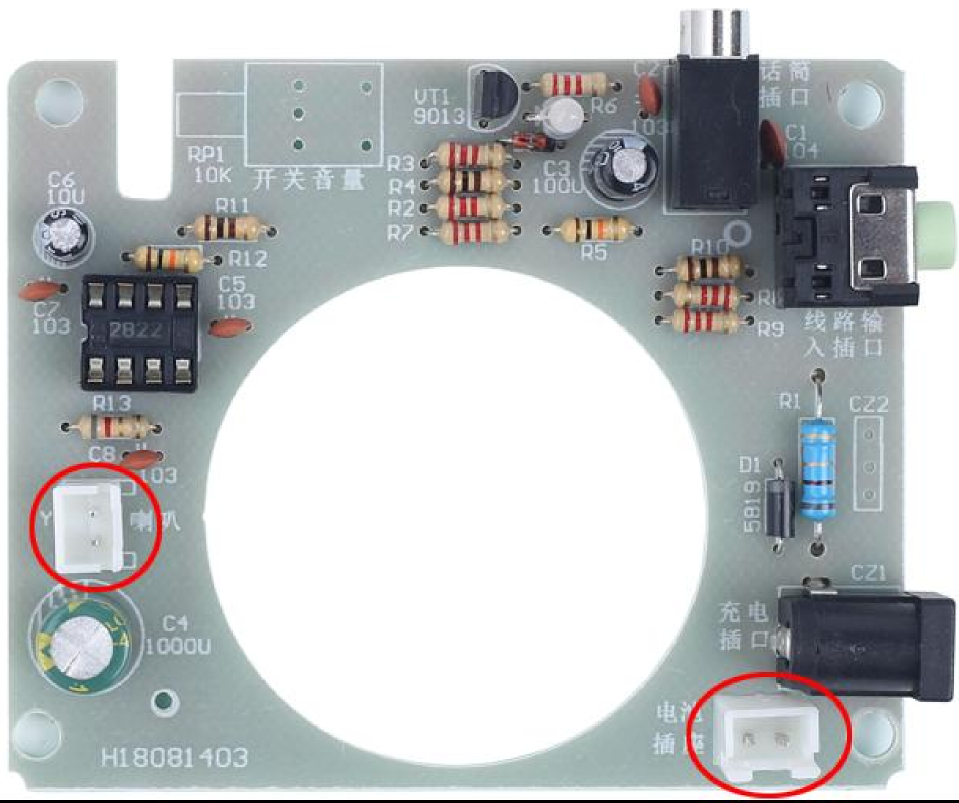
Step 17: Install 1pcs 100uF 16V Electrolytic Capacitor at C3. Pay attention to distinguish between positive and negative.The Longer pin is positive pole.



Step 18: Install 1pcs 1000uF 10V Electrolytic Capacitor at C4. Pay attention to distinguish between positive and negative.The Longer pin is positive pole.

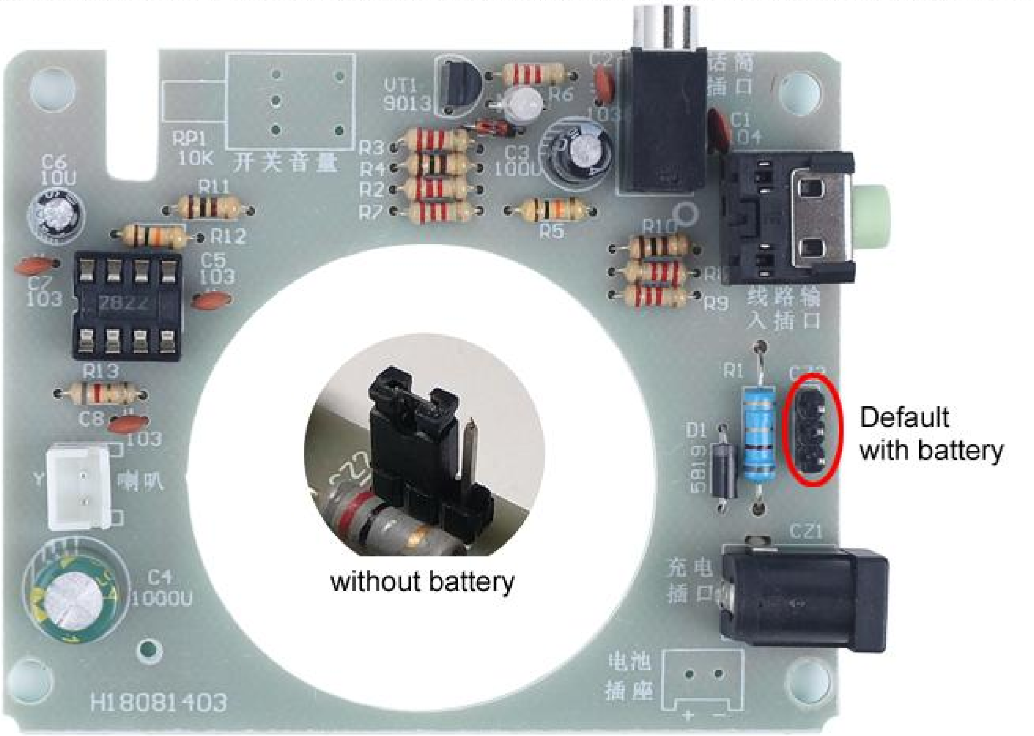


Step 19: Install 2pcs XH2.54-2P Socket at DZ1,SP1.

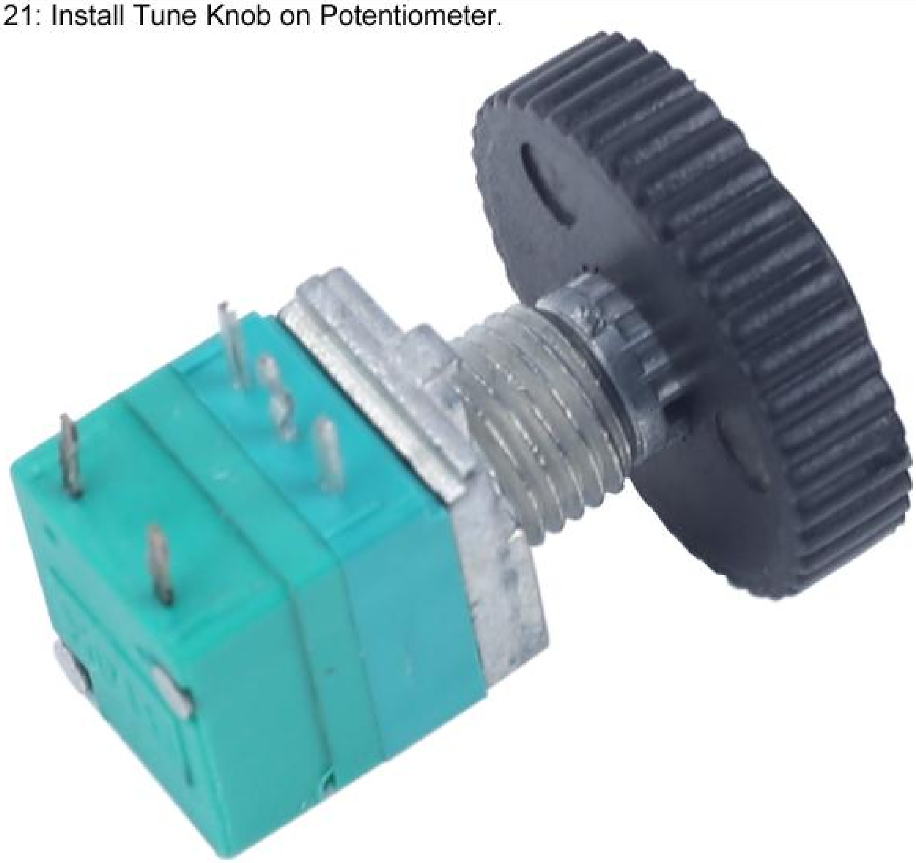


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Step 20: Install 1pcs 3Pin 2.54mm Male Pin at CZ2.
It is used to select internal battery power or external power supply.
No installation required by default and internal battery power is selected.
Jump caps must be used as shown if external power supply is selected without battery.

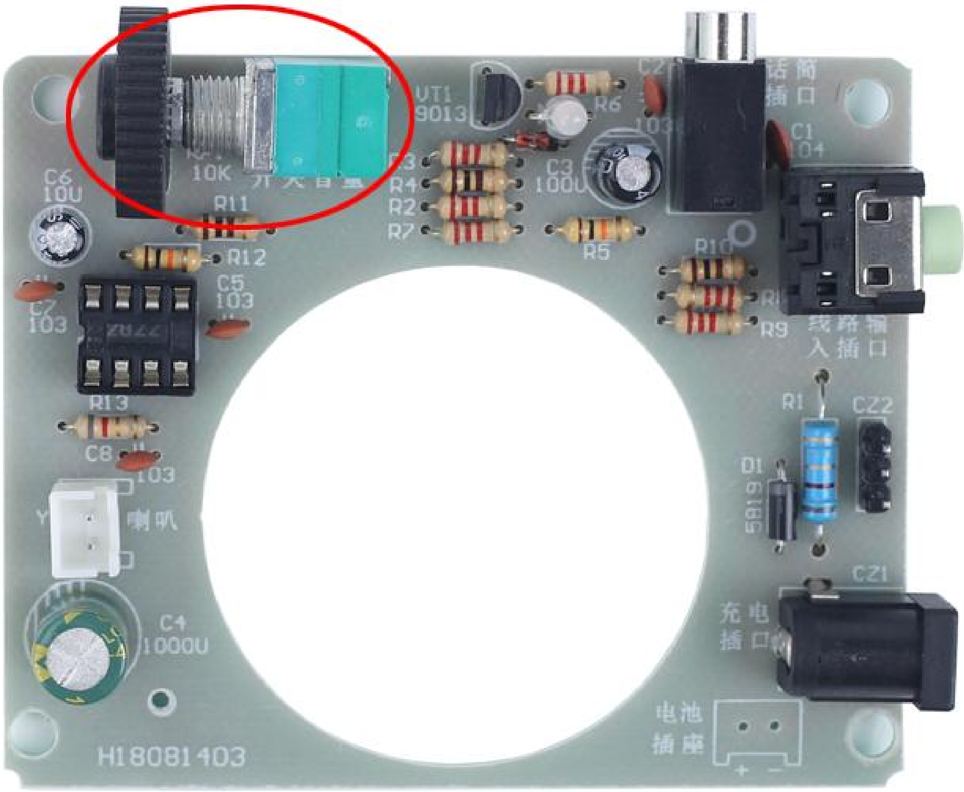


Step 21: Install Tune Knob on Potentiometer.

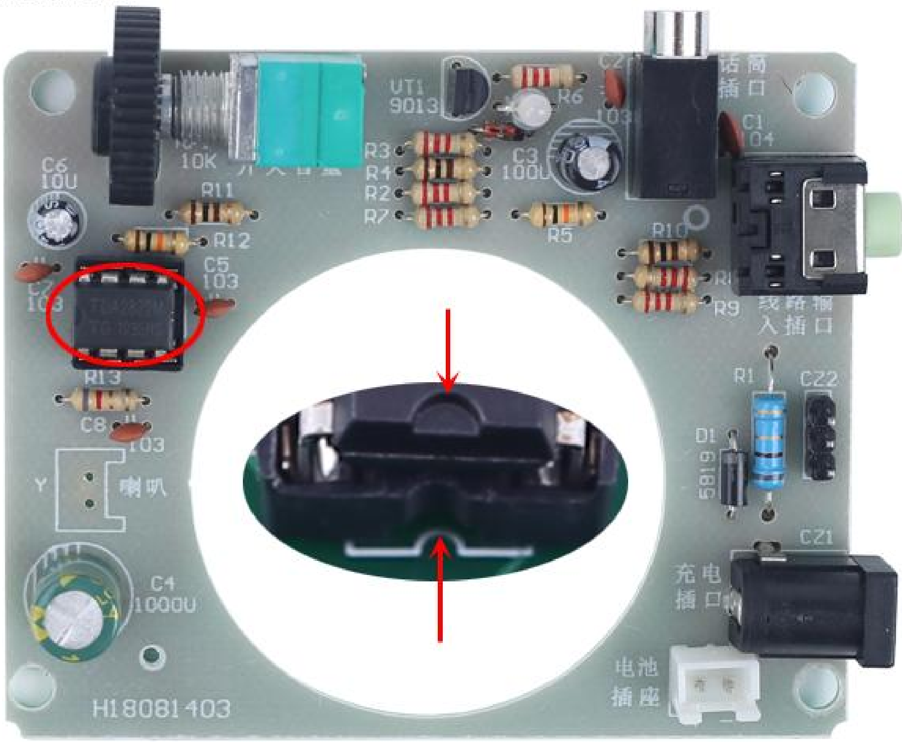


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Step 22: Install 10Kohm Potentiometer at RP1.



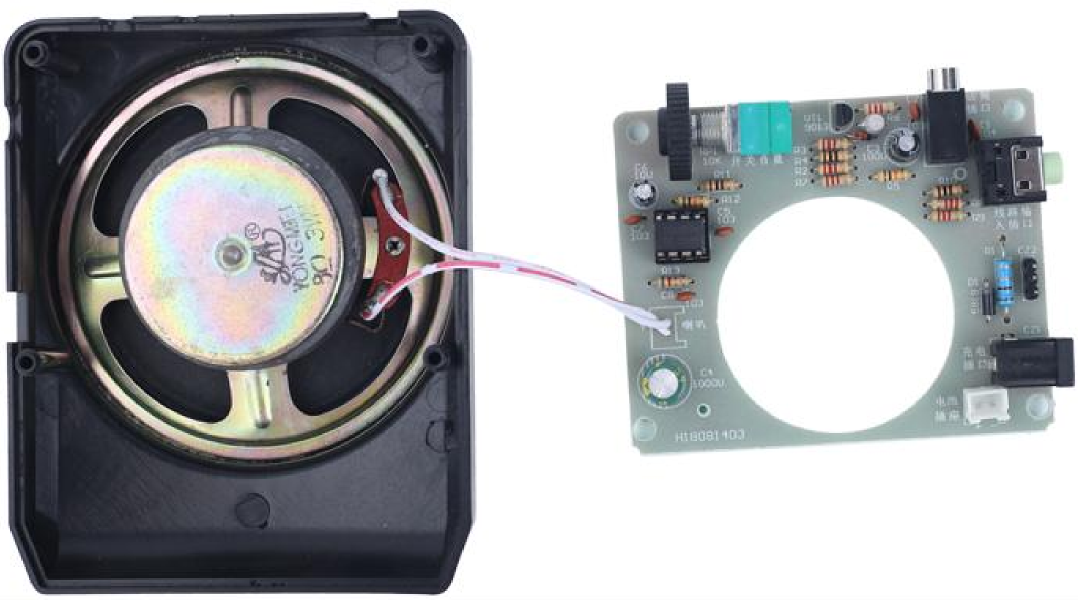
Step 23: Install 1pcs DIP-8 IC TDA2822M at IC1.There is a gap mark on one end of the IC and there is a gap mark on DIP-8 IC Socket where the IC can place on.These two marks are corresponding to each other and are used to specify the installation direction of the IC.



Step 24: Install 1pcs XH2.54-2P Cable on Speaker.

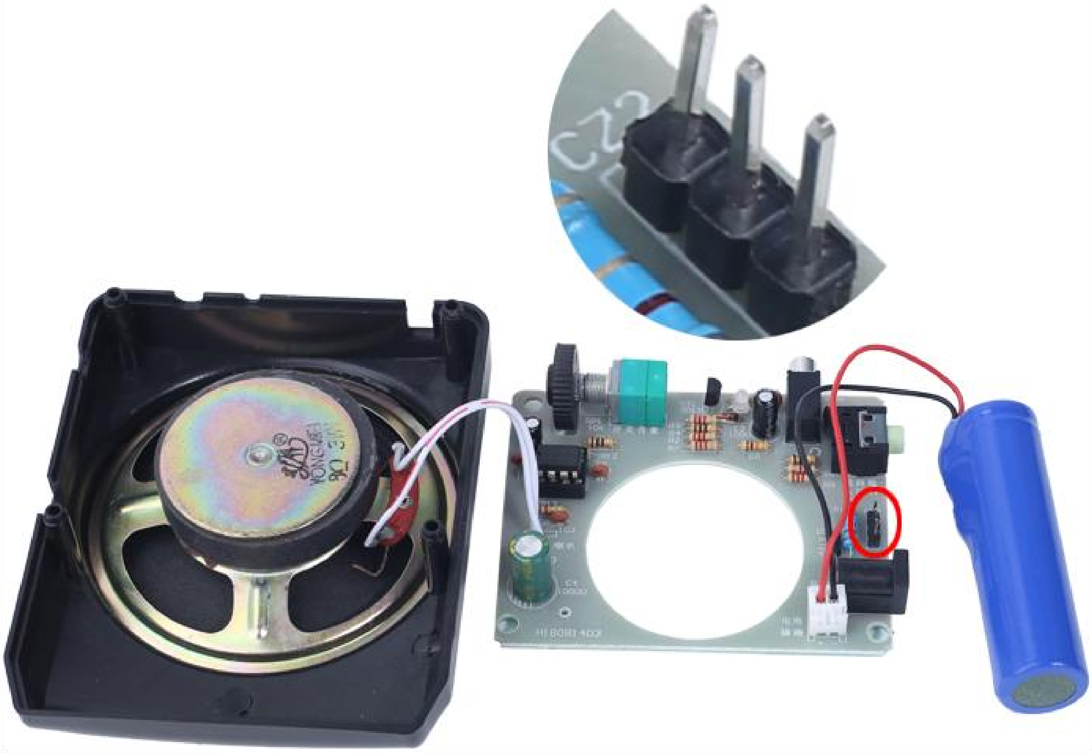


Step 25: Connect Speaker to PCB. You can choose socket or soldering directly. Speaker do not need to distinguish between positive and negative.

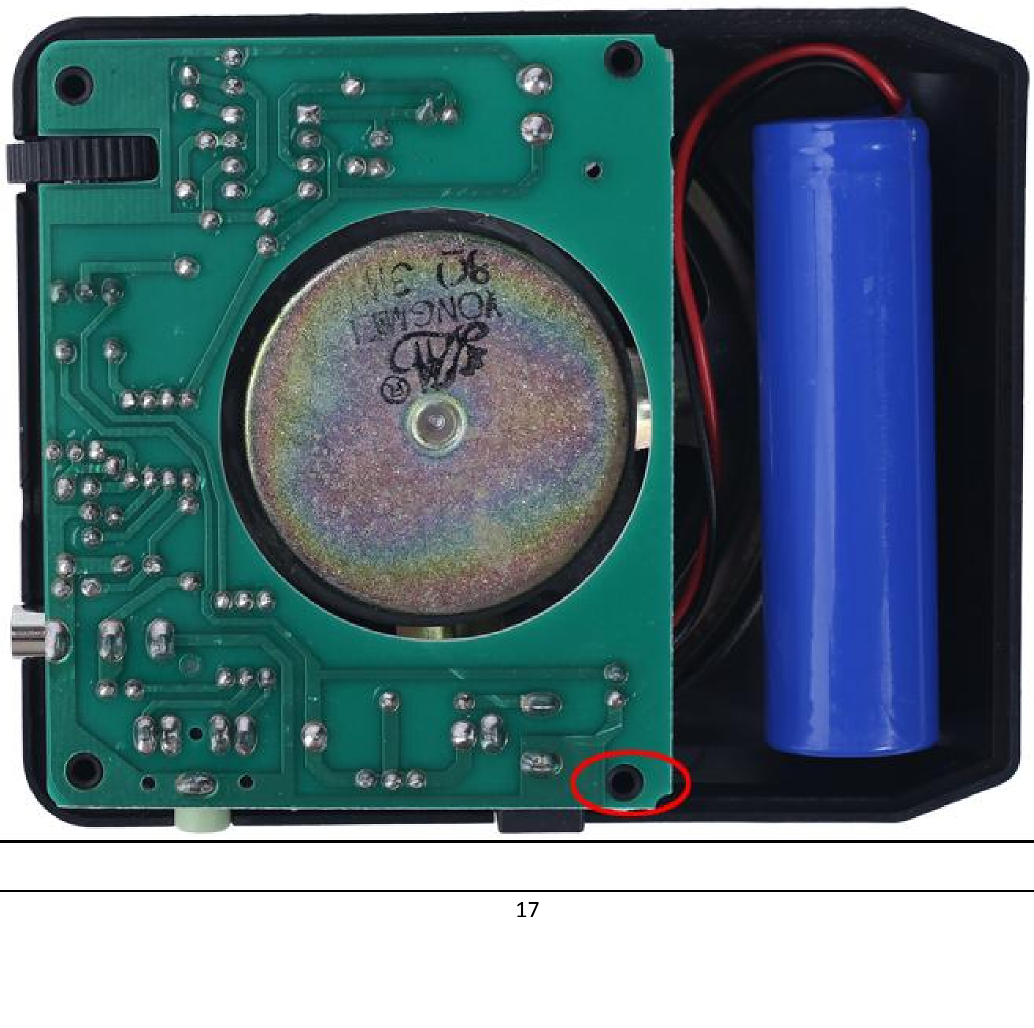


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Step 26: Connect 1pcs 18650 battery.
Pay attention to the 3Pin header, do not install any accessories after connected battery



Step 27: Place PCB on case. Be careful to align the 4 mounting holes.



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Step 28: Fix case by 4pcs M2.5*8mm Self-tapping screws and snap.

